

WHAT IS CLAIMED IS:

1. A method of determining an optimized parameter for a circuit simulation, the method comprising the steps:
 - determining a path of the circuit to analyze;
 - setting an initial maximum and minimum optimization parameter;
 - simulating the circuit with the initial minimum optimization parameter;
 - calculating a current primary criteria parameter from the circuit simulation with the initial minimum optimization parameter;
 - simulating the circuit with the initial maximum optimization parameter;
 - determining whether the simulations with the initial maximum and minimum optimization parameters generate the same status; and
 - if the simulations do not indicate the same status, continuing to recalculate the optimization parameter and simulating the circuit until the primary criteria parameter converges to a prescribed value.
2. The method of claim 1 wherein the optimization parameter is a setup and hold time for the circuit and the current primary criteria parameter is a bisection error of the simulation.
3. The method of claim 2 further comprising the step of determining further reliability checks on the circuit after determining whether the simulations indicate the same status.

4. The method of claim 2 wherein the optimization parameter is recalculated by averaging the initial minimum and maximum optimization parameters.

5. The method of claim 4 wherein the circuit is simulated using the recalculated optimization parameter and the primary criteria parameter is recalculated to determine convergence.

6. The method of claim 5 wherein if the primary criteria parameter does not converge, then the current optimization parameter is set to the current maximum optimization parameter value for the circuit simulation when the current optimization value and the current minimum optimization parameter do not have the same status.

7. The method of claim 5 wherein if the primary criteria parameter does not converge, then the current optimization parameter is set to the current minimum optimization parameter value for the circuit simulation when the current optimization value and the current minimum optimization parameter do have the same status.

8. A system for determining an optimized parameter for a circuit simulation, the system comprising:

a computer configured to execute the following procedure:

determine a path of the circuit to analyze;

set an initial maximum and minimum optimization parameter;

simulate the circuit with the initial minimum optimization parameter;

calculate a current primary criteria parameter from the circuit simulation with the initial minimum optimization parameter;

simulate the circuit with the initial maximum optimization parameter;

determine whether the simulations with the initial maximum and minimum optimization parameters generate the same status; and

if the simulations do not generate the same status, continue to recalculate the optimization parameter and simulate the circuit until the primary criteria parameter converges to a prescribed value.

9. The system of claim 8 wherein the optimization parameter is a setup and hold time for the circuit and the current primary criteria parameter is a bisection error of the simulation.

10. The system of claim 8 wherein the computer is configured to perform further reliability checks on the circuit after determining whether the simulations generate the same status.

11. The system of claim 8 wherein the computer is configured to determine whether to perform further reliability checks on the circuit based on a user assigned algorithm.

12. The system of claim 9 wherein the optimization parameter is recalculated by averaging the initial minimum and maximum optimization parameters.

13. The system of claim 12 wherein the circuit is simulated using the recalculated optimization parameter and the primary criteria parameter is recalculated to determine convergence.

14. The method of claim 13 wherein if the primary criteria parameter does not converge, then the current optimization parameter is set to the current maximum optimization parameter value for the circuit simulation when the current optimization value and the current minimum optimization parameter do not have the same status.

15. The method of claim 13 wherein if the primary criteria parameter does not converge, then the current optimization parameter is set to the current minimum optimization parameter value for the circuit simulation when the current optimization value and the current minimum optimization parameter do have the same status.

16. A method of simultaneously determining an optimized parameter and performing circuit simulations, the method comprising the steps of:

- defining a path of the circuit to be analyzed;
- simulating the circuit with an initial optimization parameter; and
- determining an ideal optimization parameter from the circuit simulation by further simulating the circuit until a criterion parameter converges to a prescribed value.

17. The method of claim 16 wherein the ideal optimization parameter is determined by performing the following steps:

- simulating the circuit with an initial optimization parameter;

simulating the circuit with an initial maximum optimization parameter;
determining whether the simulations with the initial maximum and minimum optimization parameters generate the same status; and
if the simulations do not indicate the same status, continuing to recalculate the optimization parameter and simulating the circuit until the criteria parameter converges to the prescribed value.

18. The method of claim 17 wherein the optimization parameter is a setup or hold time for the circuit and the criterion parameter is a bisection error for the simulations.